

KOENIG SOLUTIONS • COURSE OUTLINE

Microsoft SQL Always On High Availability with Optimization

Learn to optimize SQL Server query performance and implement backup, restore, replication and Always On high availability solutions.

14

MODULES

62

TOPICS

COURSE OVERVIEW

This course covers statistics, index internals and query execution plan analysis, along with plan caching, recompilation and extended events for performance troubleshooting. It then addresses data protection through auditing, encryption and dynamic data masking, followed by backup strategies, database backup and restore operations, and automating management with SQL Server Agent. The later modules cover high availability and disaster recovery concepts, including cloud data solutions, log shipping, Windows Server and SQL Server failover clustering, AlwaysOn Availability Groups, and data replication.

WHO THIS COURSE IS FOR

Database Administrators

SQL Server Developers

System Administrators

Database Architects

Data Engineers

LEARNING OBJECTIVES

- Explain statistics, index internals and columnstore indexes
- Analyse query execution plans and optimizer internals
- Describe plan cache internals and query store behaviour
- Apply extended events to monitor SQL Server activity
- Implement SQL Server Audit, encryption and dynamic data masking
- Plan and perform database, differential and transaction log backups
- Restore databases including point-in-time and piecemeal restores
- Configure AlwaysOn Availability Groups and failover clustering

14 Modules, 62 Topics

01

Statistics and Index Internals

TOPICS

- Statistics Internals and Cardinality Estimation
- Index Internals
- Columnstore Indexes

02

Query Execution and Query Plan Analysis

TOPICS

Query execution and optimizer internals · Query execution plans · Analyzing query execution plans · Adaptive query processing

03

Plan Caching and Recompilation

TOPICS

Plan cache internals · Troubleshooting plan cache issues · Automatic tuning · Query store

04

Extended Events

TOPICS

Extended events core concepts · Working with extended events

05

Protecting Data with Encryption and Auditing

TOPICS

- Options for auditing data access in SQL Server
- Implementing SQL Server Audit
- Managing SQL Server Audit
- Protecting Data with Encryption
- Always Encrypted
- Dynamic Data masking

06

Recovery Models and Backup Strategies

TOPICS

Understanding Backup Strategies · SQL Server Transaction Logs · Planning Backup Strategies

07

Backing Up SQL Server Databases

TOPICS

- Backing Up Databases and Transaction Logs
- Managing Database Backups
- Advanced Database Options
- Backing Up Databases
- Performing Database, Differential, and Transaction Log Backups
- Performing a Partial Backup

08

Restoring SQL Server 2016 Databases

TOPICS

- Understanding the Restore Process
- Restoring Databases
- Advanced Restore Scenarios
- Point-in-Time Recovery
- Restoring a Database Backup
- Restoring Database, Differential, and Transaction Log Backups
- Performing a Piecemeal Restore

09

Automating SQL Server Management

TOPICS

- Automating SQL Server management
- Working with SQL Server Agent
- Managing SQL Server Agent Jobs
- Multi-server Management
- Create a SQL Server Agent Job
- Test a Job
- Schedule a Job
- Configure Master and Target Servers

10

High Availability and Disaster Recovery Topics

TOPICS

Introduction to Enterprise Data Architecture · Multi-Server Configuration Management

INTRODUCTION TO CLOUD DATA SOLUTIONS

VM Creation in cloud · DB creation and management in cloud · Deployment DB from Onprem to cloud

11

Introduction to High Availability in SQL Server 2016/17

TOPICS

- High Availability Concepts and Options in SQL Server 2016
- Log Shipping

12

Clustering with Windows Server and SQL Server 2016/17

TOPICS

- Windows Server Failover Cluster configuration
- SQL Server failover Cluster configuration
- SQL Server AlwaysOn Failover Cluster Instances
- Setting up quorum Disk

13

AlwaysOn Availability Groups

TOPICS

- Introduction to AlwaysOn Availability Groups
- Working with AlwaysOn Availability Groups
- Considerations for Using AlwaysOn Availability Groups
- Describe the fundamental concepts and terminology for AlwaysOn Availability Groups
- Explain how work with AlwaysOn Availability Groups

14

Replicating Data

TOPICS

SQL Server Replication · Planning Replication · Types of Replication

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

FLEXIBLE DELIVERY

Learn the Way That Suits You

Classroom Training

Live Online Classes (ILO)

Fly-Me-A-Trainer (FMAT)

Flexi (Self-Paced)

1-on-1 Training

Ready to Get Started?

Talk to a learning advisor about schedules, group training and customised delivery.

Visit koenig-solutions.com

✉ info@koenig-solutions.com